

What is claimed is:

1. An anti-theft protection system for a motor vehicle, the anti-theft protection system comprising:

a transmitting and receiving unit adapted to be arranged on the motor vehicle, the transmitting and receiving unit transmitting a transmitted signal that is modulated over a broad bandwidth;

a code transmitter adapted to be portable with respect to the motor vehicle, the code transmitter transmitting an echo signal at least in response to receiving the transmitted signal; and

an evaluation unit evaluating the echo signal to determine authorization of the code transmitter and to determine a distance between the code transmitter and the transmitting and receiving unit.

2. The anti-theft protection system as claimed in claim 1, wherein the code transmitter modulates the transmitted signal and transmits the echo signal.

3. The anti-theft protection system as claimed in claim 1, wherein the transmitting and receiving unit is adapted to be arranged on at least one of an internal mirror and one or more doors of the motor vehicle.

4. The anti-theft protection system as claimed in claim 1, further comprising:

a plurality of the transmitting and receiving units adapted to be distributed on the motor vehicle, each of the plurality of the transmitting and receiving units transmit the transmitted signal and receive the echo signal; and

wherein the evaluation unit evaluates the echo signal received by each of the plurality of the transmitting and receiving units to determine the distance between the code transmitter and the transmitting and receiving unit.

5. The anti-theft protection system as claimed in claim 4, wherein the evaluation unit triangulates the echo signal received by each of the plurality of the transmitting and receiving units to determine the location of the code transmitter with respect to the transmitting and receiving unit.

6. The anti-theft protection system as claimed in claim 1, further comprising:
a plurality of the code transmitters, each of the plurality of code transmitters
transmitting different modulated echo signals; and
wherein the evaluation unit evaluates and prioritizes the different modulated echo
5 signals.

7. A method for operating an anti-theft protection system for a motor vehicle, the
method comprising:

transmitting a transmitted signal from a transmitting and receiving unit adapted to
be arranged on the motor vehicle, the transmitting including modulating the transmitted
5 signal over a broad bandwidth;

receiving an echo signal transmitted from a code transmitter adapted to be portable
with respect to the motor vehicle; and

evaluating the echo signals in an evaluation unit adapted to be arranged on the
motor vehicle, the evaluating including determining authorization of the code transmitter
10 and determining a distance between the code transmitter and the transmitting and
receiving unit.

8. The method as claimed in claim 7, wherein the code transmitter modulates the
transmitted signal and sends the echo signal back to the transmitting and receiving unit,
and wherein the evaluating includes checking an echo profile of the echo signal.

9. The method as claimed in claim 7, wherein a plurality of the transmitting and
receiving units are adapted to be distributed on the motor vehicle, and wherein the
transmitting comprises a respective plurality of the transmitted signals and the evaluating
comprises a plurality of the echo signals.

10. The method as claimed in claim 7, wherein the transmitting comprises a plurality
of successive transmitted signals, and the evaluating comprises checking respective echo
profile and determining at least one of the distance and a change in the distance.

11. The method as claimed in claim 7, wherein the transmitting comprises at least one of a microwave signal and a radar signal, the at least one signal being modulated over a broad bandwidth at frequencies greater than 1 GHz.